

848524

TRANSMITTAL FORM

(To be used for all correspondence after initial filing)

Application Number	10/612,713	
Filing Date	July 1, 2003	
First Named Inventor	David A. Tirrell	
Art Unit	1636	-
Examiner Name	David Guzo	
Attorney Docket No.	110197.402C1	

	ENCLOSURES (check all that apply)			
Fee Transmittal Form Fee Attached	Drawing(s)			
Remarks				
SIGNA	TURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name Seed Int	ellectual Property Law Group PLLC Customer Number 00500			
Signature				
Printed Name William	Г. Christiansen, Ph.D.			
Date October	24, 2006 Reg. No. 44,614			
	ERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or with the United States Postal Service with sufficient postage as first class mail in an envaddressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexa 22313-1450 on the date shown below.				
Signature	(FL)			
Typed or printed name	Jason Añover Date: October 24, 2006			

Thu}\$

4

es pursuant to the C	`onsolidated Appr	onriations Act 2005	(H D 4818)		Col	mplete if Ki	nown	Oth
٧٥			_	Application	Number	10/612,71	3	
نير ivi پير ivi	TRANS	SMITTA	L	Filing Date		July 1, 20		C7 -
Applicant claims	For FY	2006		First Named	Inventor	David A.	Tirre	C7 3 1 2006
<u>k</u>				Examiner N	ame	David Guz		
Applicant claims	small entity sta	atus. See 37 C	CFR 1.27	Art Unit		1636	(e/A)	DEMARK OF
TOTAL AMOUNT O		1 (1)		Attorney Do	cket No.	110197.4	02C1	CEMARIN
METHOD OF PAYN	IENT (check a	ll that apply)						
Deposit Account For the above-ic Charge fee Charge an of fee(s) u	Deposit Adentified deposit (s) indicated by additional feur ander 37 CFR this form may bed	below e(s) or underpa 1.16 and 1.17	er: <u>19-1090</u> Director is h	☐ Charge fee	ount Name: ed to: (che (s) indicated underpayn	ck all that a d below, exc nents or cre	pply) cept for the	ne filing fed erpayments
authorization on PTO-203		 		·				
FEE CALCULATION	_ 			g or may be s	ubject to a	surcnarge.	.) 	
1. BASIC FILING, S	SEARCH, ANI	DEXAMINATION	•		ΕΥΔΜ	INATION		
	FILING	FEES	SEARC	CH FEES		EES		
		Small Entity	!	Small Entity	<u>.</u>	Small Entity		
Application Type	Fee (\$)	Fee (\$)	Fee (\$)	Fee (\$)	Fee (\$)	Fee (\$)	<u>Fe</u>	es Paid (\$
Utility	300	150	500	250	200	100		
Design	200	100	100	50	130	65		
Provisional	200	100	0	0	0	0		
2. EXCESS CLAIM	FEES							Small E
Fee Description							<u>Fee (\$)</u>	Fee (S
Each claim over 20 (i	ncluding Reiss	ues)					50	25
Each independent cla	im over 3 (incl	uding Reissues))				200	100
Multiple dependent cl	aims						360	180
Total Claims	Extra Cla	<u>aims</u> <u>F</u>	<u>ee (\$)</u>	Fee Paid	<u>(\$)</u>	Multip	ole Depen	dent Clain
20 or HP	' =	Χ.		·		Fee (\$) !	Fee Paid (
HP = highest number	er of total clain	ns paid for, if gr	eater than 20).				
Indep. Claims	Extra Cla	<u>aims</u> <u>F</u>	<u>ee (\$)</u>	Fee Paid	(\$)			
	=	Χ.	=	·	,			
3 or HP				than 2		•		
-3 or HP HP = highest number		ent claims paid	for, if greate	r man 3.				
. —	er of independe	ent claims paid	for, if greate	r man 3.				
HP = highest number	er of independent of the state	xceed 100 she	ets of paper (ue is \$250 (\$	excluding elec				
HP = highest number 3. APPLICATION S If the specification a under 37 CFR 1.52(er of independent of the state	exceed 100 she ation size fee du S) and 37 CFR	ets of paper (ue is \$250 (\$' 1.16(s).	excluding elec	ntity) for ea	ch additiona		ts or fraction
HP = highest number 3. APPLICATION S If the specification a under 37 CFR 1.52(thereof. See 35 U.S.)	er of independents SIZE FEE Ind drawings e Big (1) (0) (1) (0) (1) (0) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	exceed 100 she ation size fee du S) and 37 CFR	ets of paper (ue is \$250 (\$ 1.16(s). ber of each a	(excluding elec 125 for small e	ntity) for ea	ch additiona	al 50 shee	
HP = highest number 3. APPLICATION S. If the specification a under 37 CFR 1.52(thereof. See 35 U.S. Total Sheets	er of independents SIZE FEE Ind drawings e Big (1) (0) (1) (0) (1) (0) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	exceed 100 she ation size fee du and 37 CFR ets <u>Numl</u>	ets of paper (ue is \$250 (\$ 1.16(s). ber of each a	(excluding election of the lection o	ntity) for ea	ch additiona	al 50 shee	ts or fraction

Registration No. (Attorney/Agent)

William T. Christiansen, Ph.D.

44,614

Telephone

Date

206-622-4900

October 24, 2006

Name (Print/Type) 848539_1.DOC

Signature

SUBMITTED BY



I hereby certify that on the date specified below, this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

2006 ctober 24 Date

Jason Añover

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants

David A. Tirrell et al.

Application No.

10/612,713

Filed :

July 1, 2003

For

OVEREXPRESSION OF AMINOACYL-tRNA SYNTHETASES

FOR EFFICIENT PRODUCTION OF ENGINEERED PROTEINS

CONTAINING AMINO ACID ANALOGUES

Examiner

: David Guzo

Art Unit

: 1636

Docket No.

: 110197.402C1

Date

: October 24, 2006

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Commissioner for Patents:

In accordance with 37 CFR 1.56 and 1.97 through 1.98, applicants wish to make known to the U.S. Patent and Trademark Office the references set forth on the attached Information Disclosure Statement. Copies of cited U.S. patents and published patents applications are not required and accordingly have not been provided. Copies of any other cited references are enclosed. As to any reference cited, applicants do not admit that it is "prior art's under 35 U.S.C. §§ 102 or 103, and specifically reserve the right to traverse or antedate any such was a such with the serve the right to traverse or antedate any such was a su reference, as by a showing under 37 CFR 1.131 or other method. Although the aforesaid references are made known to the Patent and Trademark Office in compliance with applicants' duty to disclose all information they are aware of which is believed relevant to the examination of the above-identified application, applicants believe that their invention is patentable.

Please acknowledge receipt of this Information Disclosure Statement and kindly make the cited references of record in the above-identified application.

A fee of \$180 is submitted in accordance with 37 CFR 1.97(c). The Director is authorized to charge any other fees which may be required, or credit any overpayment to Deposit Account No. 19-1090.

Respectfully submitted,

Seed Intellectual Property Law Group PLLC

William T. Christiansen, Ph.D.

Registration No. 44,614

Enclosures:

Check Information Disclosure Statement Cited References (86)

701 Fifth Avenue, Suite 6300 Seattle, Washington 98104-7092

Phone: (206) 622-4900 Fax: (206) 682-6031

848529

	OARE	4290
	0 ct 3 0	700 PN RA
13		- 18 CO

SUPPLEMENTAL

RMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

		Sheet 1 of 8
ATTY, DOCKET NO.	APPLICATION NO.	
110197.402C1	10/612,713	
APPLICANTS		
David A. Tirrell et al.		
FILING DATE	GROUP ART UNIT	
July 1, 2003	1636	

*EVAL (DIED			0.5	. PATENT DOCUMENTS		1	En Dic	DATE
*EXAMINER INITIAL	I INDUINENIALIMER		DATE	NAME	CLASS	SUBCLASS	IF APPRO	DATE OPRIATE
	AA	5,370,995	12/06/94	Hennecke et al.	435	69.1		
			FORE	GN PATENT DOCUMENT	ΓS			
		DOCUMENT NUMBER	DATE	cou	NTRY		TRANSI	
<u> </u>	AB	NONDER					YES	NO
	L	OTHE	ID DDIOD A	P.T. a. a. b. a.				
·	Ι	· · · ·		ART (Including Author, Title, Date, Pe		. 1	. A . '.1	•
	AC		•	etic Site-specific Incorpora		tural Amin	o Acia	into
				em. Soc., 111:8013-8014, 19		II.' . D	. 1' 1	
	AD			esis of Novel a-Amino-Aci L- and D-a-Amino-Adipic		_		
				Derivatives," <i>Tetrahedron</i>			oid allu	
				² Su ⁺ 2 Mutants that Incre			Racte	
	AE	· ·			case Amoer Supp) i e 3 3 10 11,	Duciel	101.
Brick, P., et al., "Structure of Tyrosyl-tRNA Synthetase Refined at 2 3 Å Resolution. Interaction of the Enzyme with the Tyrosyl Adenylate Intermediate," J. Mol. Biol., 208(1):83-98, 1989. Budisa, N., et al., "Bioincorporation of Telluromethionine into Proteins: a Promising New Approach for X-ray Structure Analysis of Proteins," J Mol Biol., 270(4):616-23, July 25,								
						ŕ		
					Vew			
					25,			
	ļ <u>.</u>	1997.						
Budisa, N., et al., "High-level Biosynthetic Substitution of Methionine in Proteins by its								
		· •		ic Acid, Selenomethionine,		ne and Eth	ionine	in
				Biochem, 230(2):788-796,				
	Al		-	ue-specific Bioincorporation			•	
Amino Acids into Proteins as Possible Drug Carriers: Structure and Stability of the Perthiaproline Mutant of Annexin V," <i>Proc Natl Acad Sci USA</i> , 95(2):455-9, January 20,								
						J,		
1998. Budisa, N., et al., "Toward the Experimental Codon Reassignment in Vivo: Protein Build							:1.1:	
	AJ			•	•			11101
	-	····		o Acid Repertoire," FASEB hesis of Optically Pure Pipe				icati
	AK		•	(+)-Apovincamine through				
			-	," J. Org. Chem., 50:1239-		car oonly lat	ion and	
EXAMINE	ER	1 1 1 1 1 1 1 1 1 1 1 1	oj viizacion	DATE CONSID				

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

SUPPLEMENTAL

ATTY. DOCKET NO.	APPLICATION NO.
110197.402C1	10/612,713
APPLICANTS	
David A. Tirrell et al.	
FILING DATE	GROUP ART UNIT
	1.464

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) July 1, 2003 1636 U.S. PATENT DOCUMENTS *EXAMINER FILING DATE DOCUMENT NUMBER DATE CLASS **SUBCLASS** NAME INITIAL IF APPROPRIATE BA FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER YES NO BB OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Cornish, V., et al., "Site-specific Protein Modification Using a Ketone Handle," J. Am. вС Chem. Soc., 118:8150-8151, 1996. Doctor, B., et al., "Species Specificity Of Amino Acid Acceptor Ribonucleic Acid And BD Aminoacyl Soluble Ribonucleic Acid Synthetases," J Biol Chem., 238:3677-81, November Döring, V., et al., "Enlarging the Amino Acid set of Escherichia coli by Infiltration of the BE Valine Coding Pathway," Science, 292(5516):501-4, April 20, 2001. Dougherty, D., "Unnatural Amino Acids as Probes of Protein Structure and Function," Curr Opin Chem Biol., 4(6):645-52, December 2000. Ellman, J., et al., "Biosynthetic Method for Introducing Unnatural Amino Acids Site-BG Specifically Into Proteins," Methods Enzymol., 202:301-36, 1991. Ellman, J., et al., "Site-specific Iincorporation of Novel Backbone Structures into BH Proteins," Science, 255(5041):197-200, January 10, 1992. England, P., et al., "Backbone Mutations in Transmembrane Domains of a Ligand-gated Ion Channel: Implications for the Mechanism of Gating," Cell, 96(1):89-98, January 8, 1999. Fechter, P., et al., "Major Tyrosine Identity Determinants in Methanococcus Jannaschii and BI Saccharomyces cerevisiae tRNA(Tyr) are Conserved but Expressed Differently," Eur J *Biochem.*, 268(3):761-7, February 2001. Francisco, J., et al., "Production and Fluorescence-activated Cell Sorting of Escherichia coli вк Expressing a Functional Antibody Fragment on the External Surface," Proc Natl Acad Sci U S A., 90(22):10444-8, November 15, 1993. Friedman, O., et al., "Synthesis of Derivatives of Glutamine as Model Substrates for Anti-BL Tumor Agents," J. Am. Chem. Soc., 81:3750-3752, 1959. Furter, R., "Expansion of the Genetic Code: Site-directed p-fluoro-phenylalanine RM Incorporation in Escherichia coli.," *Protein Sci.*, 7(2):419-26, February 1998. **EXAMINER** DATE CONSIDERED

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

		<u> </u>
ATTY, DOCKET NO.	APPLICATION NO.	
110197.402C1	10/612,713	
APPLICANTS		
David A. Tirrell et al.		
FILING DATE	GROUP ART UNIT	
	1	

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | July 1, 2003 1636 **U.S. PATENT DOCUMENTS** *EXAMINER FILING DATE **SUBCLASS** DOCUMENT NUMBER DATE NAME CLASS IF APPROPRIATE INITIAL CA FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER YES CB OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Gabriel, K., et al., "A Set of Plasmids Constitutively Producing Different RNA Levels in CC Escherichia coli," J Mol Biol., 290(2):385-9, July 9, 1999. Gallivan, J., et al., "Site-specific Incorporation of Biotinylated Amino Acids to Identify CD Surface-exposed Residues in Integral Membrane Proteins," Chem Biol., 4(10):739-49, October 1997. Gay, G., et al., "Modification of the Amino Acid Specificity of Tyrosyl-tRNA Synthetase by CE Protein Engineering," FEBS Letters, 318:167-171, 1993. Giegé, R., et al., "Aspartate Identity of Transfer RNAs," Biochimie 78(7):605-23, 1996. CF Giegé, R., et al., "Universal Rules and Idiosyncratic Features in tRNA Identity," Nucleic Acids Res., 26(22):5017-35, November 15, 1998. Guckian, K., et al., "Highly Precise Shape Mimicry by a Difluoro-toluene Deoxynucleoside, CH a Replication-Competent Substitute for Thymidine," Angew Chem. Int. Ed. Engl. *36*(24):2825-2828, 1997. Hamano-Takaku, F., et al., "A Mutant Escherichia coli Tyrosyl-tRNA Synthetase Utilizes CI the Unnatural Amino Acid Azatyrosine more Efficiently than Tyrosine," J Biol Chem., 275(51):40324-8, December 22, 2000. Hartley, R., "Barnase and Barstar. Expression of its Cloned Inhibitor Permits Expression of a Cloned Ribonuclease," J Mol Biol., 202(4):913-5, August 20, 1988. Hohsaka, T., et al., "Efficient Incorporation of Nonnatural Amino Acids with Large CK Aromatic Groups into Streptavidin in In Vitro Protein Synthesizing Systems," J. Am. Chem. Soc., 121:34, 1999. Ibba, M., et al., "Relaxing the Substrate Specificity of an Aminoacyl-tRNA Synthetase CL Allows in vitro and in vivo Synthesis of Proteins Containing Unnatural Amino Acids," FEBS Lett., 364(3):272-5, May 15, 1995.

EXAMINER DATE CONSIDERED

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

_			
	ATTY. DOCKET NO.	APPLICATION NO.	
	110197.402C1	10/612,713	
	APPLICANTS		
	David A. Tirrell et al.		
	FILING DATE	GROUP ART UNIT	

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) July 1, 2003 1636 U.S. PATENT DOCUMENTS *EXAMINER FILING DATE DOCUMENT NUMBER DATE CLASS **SUBCLASS** NAME INITIAL IF APPROPRIATE DA FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER YES NO DB OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Ibba, M., et al., "Substrate Specificity is Determined by Amino acid Binding Pocket Size in DC Escherichia coli Phenylalanyl-tRNA Synthetase," Biochemistry, 33(23):7107-12, June 14, 1994. Ibba, M., "Strategies for in vitro and in vivo Translation with Non-natural Amino Acids," DD Biotechnol Genet Eng Rev. 13:197-216, December 1995. Jakubowski, H., et al., "Editing of Errors in Selection of Amino Acids for Protein DE Synthesis.," *Microbiol Rev.*, *56*(3):412-29, September 1992. Jeruzalmi, D., et al., "Structure of T7 RNA Polymerase Complexed to the Rranscriptional DF Inhibitor T7 Lysozyme," *EMBO J., 17*(14):4101-13, July 15, 1998. Kiick, K., et al., "Protein Engineering by In Vivo Incorporation of Non-Natural Amino DG Acids: Control Of Incorporation of Methionine Analogues by Methionyl-tRNA Synthetase," Tetrahedron, 56:9487-9493, 2000. King, F., et al., "A New Synthesis of Glutamine and of γ-Dipeptides of Glutamic Acid from DH Phthalylated Intermediates," J. Chem. Soc., 4:3315-3319, 1949. Kleeman, T., et al., "Human Tyrosyl-tRNA Synthetase Shares Amino Acid Sequence DΙ Homology with a Putative Cytokine," J Biol Chem., 272(22):14420-5, May 30, 1997. Kleina, L., et al., "Construction of Escherichia coli Amber Suppressor tRNA Genes. II. DJ Synthesis of Additional tRNA Genes and Improvement of Suppressor Efficiency," J Mol Biol., 213(4):705-17, June 20, 1990. Kool, E., "Synthetically Modified DNAs as Substrates for Polymerases," Curr Opin Chem DK Biol., 4(6):602-8, December 2000. Koskinen, et al., "Synthesis of 4-Substituted Prolines as Conformationally Constrained DL Amino Acid Analogues,: J. Org. Chem. 54:1859-1866, 1989. Kowal, A., et al., "Exploiting Unassigned Codons in Micrococcus Luteus for tRNA-based DM

DATE CONSIDERED **EXAMINER**

* EXAMINER: Initial if reference considered, whether or not criteriais in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

Amino Acid Mutagenesis," Nucleic Acids Res., 25(22):4685-9, November 15, 1997.

ATTY. DOCKET NO.	APPLICATION NO.
110197.402C1	10/612,713
APPLICANTS	
David A. Tirrell et al.	
FILING DATE	GROUP ART UNIT

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) July 1, 2003 1636 U.S. PATENT DOCUMENTS *EXAMINER FILING DATE DOCUMENT NUMBER DATE NAME CLASS **SUBCLASS** IF APPROPRIATE INITIAL EA FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER YES NO ΕB OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Kowal, A., et al., "Twenty-first Aminoacyl-tRNA Synthetase-suppressor tRNA Pairs for EC Possible Use in Site-specific Incorporation of Amino Acid Analogues into Proteins in Eukaryotes and in Eubacteria," Proc Natl Acad Sci USA., 98(5):2268-73, February 27, 2001. Lee, J-Y., et al., "Novel Biological Process for L-DOPA Production from L-Tyrosine by p-ED hydroxyphenylacetate 3-hydroxylase," Biotechnology letters, 20(5):479-482, May 1998. Liu, D., et al., "Characterization of an 'orthogonal' Suppressor tRNA Derived from E. coli EE tRNA₂^{Gln}," Chem Biol., 4(9):685-91, September 1997. Lorincz, M., et al., "Enzyme-generated Intracellular Fluorescence for Single-cell Reporter EF Gene Analysis Utilizing Escherichia Coli Beta-glucuronidase," Cytometry, 24(4):321-9, August 1, 1996. Lu, T., et al., "Probing Ion Permeation and Gating in a K+ Channel with Backbone EG Mutations in the Selectivity Filter," Nat Neurosci., 4(3):239-46, March 2001. Ma, C., et al., "In Vitro Protein Engineering Using Synthetic tRNA^{Ala} with Different EΗ Anticodons," Biochemistry, 32(31):7939-45, August 10, 1993. Matsoukas, J., et al., "Differences in Backbone Structure Between Angiotensin II Agonists ΕI and Type I Antagonists," *J Med Chem.*, 38(23):4660-9, November 10, 1995. McMinn, D., et al., "Efforts Toward Expansion of the Genetic Alphabet: DNA Polymerase EJ Recognition of a Highly Stable, Self-Pairing Hydrophobic Base," J. Am. Chem. Soc., *121*:11585-11586, 1999. Meggers, E., et al., "A Novel Copper-Mediated DNA Base Pair," J. Am. Chem. Soc., EΚ 122:10714-15, 2000. Mendel, D., et al., "Site-directed Mutagenesis with an Expanded Genetic Code," Annu Rev EL. Biophys Biomol Struct., 24:435-62, 1995. DATE CONSIDERED **EXAMINER**

Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

* EXAMINER:

	ATTY, DOCKET NO.	APPLICATION NO.
	110197.402C1	10/612,713
	APPLICANTS	
	David A. Tirrell et al.	
	FILING DATE	GROUP ART UNIT
ı		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) 1636 July 1, 2003 U.S. PATENT DOCUMENTS *EXAMINER FILING DATE DOCUMENT NUMBER DATE SUBCLASS NAME CLASS INITIAL IF APPROPRIATE FΑ FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER YES . NO FΒ OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Miller, J., et al., "Flash Decaging of Tyrosine Sidechains in an Ion Channel," Neuron, FC 20(4):619-24, April 1998. Minks, C., et al., "Noninvasive Tracing of Recombinant Proteins with FD "Fluorophenylalanine-fingers," Anal Biochem., 284(1):29-34, August 15, 2000. Moore, B., et al., "Quadruplet Codons: Implications for Code Expansion and the FΕ Specification of Translation Step Size," J Mol Biol., 298(2):195-209, April 28, 2000. Nickitenko, A., et al., 2 Å Resolution Structure of DppA, a Periplasmic Dipeptide FF Transport/Chemosensory Receptor," Biochemistry, 34(51):16585-95, December 26, 1995. Nilsson, B., et al., "A Synthetic IgG-binding Domain Based on Staphylococcal Protein A," FG Protein Eng., 1(2):107-13, Feb-Mar 1987. O'Mahony, D., et al., "Glycine tRNA Mutants with Normal Anticodon Loop Size Cause -1 FH Frameshifting," Proc Natl Acad Sci USA., 86(20):7979-83, October 1989. Ogawa, A., et al., "Efforts Toward the Expansion of the Genetic Alphabet: Information FI Storage and Replication with Unnatural Hydrophobic Base Pairs," J. Am. Chem. Soc. 122:3274-3287, 2000. Ogawa, A., et al., "Rational Design of an Unnatural Base Pair with Increased Kinetic FJ Selectivity," J. Am. Chem. Soc., 122:8803-8804, 2000 Ohno, S., et al., "Co-expression of Yeast Amber Suppressor tRNA Tyr and Tyrosyl-tRNA FΚ Synthetase in Escherichia coli: Possibility to Expand the Genetic Code," J Biochem (Tokyo). 124(6):1065-8, December 1, 1998. Pastrnak, M., et al., "A New Orthogonal Suppressor tRNA/aminoacyl-tRNA Synthetase Pair FL for Evolving an Organism with an Expanded Genetic Code," Helv. Chim. Acta, 83:2277-2286, 2000. Pastrnak, M., et al., "Phage Selection for Site-specific Incorporation of Unnatural Amino FM

DATE CONSIDERED **EXAMINER**

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

Acids into Proteins In Vivo," Bioorg Med Chem., 9(9):2373-9, 2001.

ATTY. DOCKET NO.	APPLICATION NO.	.=	
110197.402C1	10/612,713		
APPLICANTS			
David A. Tirrell et al.			
FILING DATE	GROUP ART UNIT		
1 1 1 2002	1626	•	

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | July 1, 2003 | 1636 **U.S. PATENT DOCUMENTS** *EXAMINER FILING DATE **SUBCLASS** DOCUMENT NUMBER DATE NAME CLASS IF APPROPRIATE INITIAL GA FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT DATE COUNTRY NUMBER GB OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.) Saks, M., et al., "An Engineered Tetrahymena tRNA Gln for in Vivo Incorporation of GC Unnatural Amino Acids into Proteins by Nonsense Suppression," J Biol Chem., 271(38):23169-75, September 20, 1996. Santoro, S., et al., "An Efficient System for the Evolution of Aminoacyl-tRNA Synthetase GD Specificity," Nat. Biotechnol., 20(10):1044-8, October 20, 2000. Sayers, J., et al., "5'-3' Exonucleases in Phosphorothioate-based Oligonucleotide-directed GE Mutagenesis," Nucleic Acids Res., 16(3):791-802, February 11, 1988. Shao, J., et al., "Unprotected Peptides as Building Blocks for the Synthesis of Peptide GF Dendrimers with Oxime, Hydrazone, and Thiazolidine Linkages," J. Am. Chem. Soc., 117(14):3893-3899, 1995. Sharma, N., et al., "Efficient Introduction of Aryl Bromide Functionality into Proteins in GG Vivo," FEBS Lett., 467(1):37-40, February 4, 2000. Sieber, V., et al., "Libraries of Hybrid Proteins from Distantly Related Sequences," Nat GH Biotechnol., 19(5):456-60, May 2001. Sprinzl, M., et al., "Compilation of tRNA Sequences and Sequences of tRNA Genes," GI Nucleic Acids Res., 26(1):148-53, January 1, 1998. Steer, B., et al., "Major Anticodon-binding Region Missing from an Archaebacterial tRNA GJ Synthetase," J Biol Chem., 274(50):35601-6, December 10, 1999. Subasinghe, N., et al., "Quisqualic Acid Analogues: Synthesis of β-heterocyclic 2-GK aminopropanoic Acid Derivatives and their Activity at a Novel Quisqualate-sensitized Site,"

Switzer, C., et al., "Enzymatic Incorporation of a New Base Pair into DNA and RNA,." J. Am. Chem. Soc., 111:8322-8323, 1989. **EXAMINER** DATE CONSIDERED

Sussman, J., et al., "Crystal Structure of Yeast Phenylalanine Transfer RNA. I.

Crystallographic Refinement," J Mol Biol., 123(4):607-30, August 5, 1978.

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).

J Med Chem., 35(24):4602-7, November 27, 1992.

GL

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.	APPLICATION NO.				
110197.402C1	10/612,713				
APPLICANTS					
David A. Tirrell et al.					
FILING DATE	GROUP ART UNIT				
July 1, 2003	1636				

				July 1, 2003		36				
			U.S.	PATENT DOCUMENTS						
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE			
	1,,,		, -							
 	HA				<u> </u>		<u> </u>			
		OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)								
	нс									
	 -			I Am Chem Soc., 123(30):743						
	HD	Tang, Y., et al., "Fluorinated Coiled-Coil Proteins Prepared In Vivo Display E								
		Thermal and Chemical Stability," <i>Angew Chem Int Ed Engl.</i> , 40(8):1494-1496, April 17, 2001.								
	Turcetti G. et al. "Probing the Structure and Function of the Tachykinin Neuroki									
Receptor through Biosynthetic Incorporation of Fluorescent Amino Acid										
		J Biol Chem., 271(33):19991-8, August 16, 1996.								
Van Hest, J., et al., "Efficient Incorporation of Unsaturated						ine Analog	ues into			
		Proteins in Vivo," J. Am. Chem. Soc., 122:1282-1288, 2000.								
	HG Van Hest, J., et al., "Efficient Introduction of Alkene Functionality in						s in vivo,"			
				70, May 22, 1998.						
Wakasugi, K., et al., "Genetic Code in Evolution: Switching							2 1000			
		Aminoacylation with a Peptide Transplant," <i>EMBO J., 17</i> (1):297-305, January 2, 1998.								
	н	Wang, L., et al., "A New Functional Suppressor tRNA/aminoacyl-tRNA Synthetase Pair for the in Vivo Incorporation of Unnatural Amino Acids into Proteins," J. Am. Chem. Soc.,								
		1		i oi Oilliatulai Allillio Acius i	into i fotcins,	J. Am. Ch	em. Boc.,			
	1	122:5010-5011, 2000. Wang, L., et al., "A General Approach for the Generation of Orthogonal tRNAs," Chem								
	HJ	Biol., 8(9):883-90, September 2001.								
	1		· · · · · · · · · · · · · · · · · · ·	ling the Genetic code of Esch	nerichia coli,".	Science, 29	2(5516):49			
	HK	500, April 20, 2001.								
	HL	Wang, L., et	al., "Expand	ling the genetic code," Chem	Commun (Car	mb)., (1):1-	11, Januar			
		7, 2002.								
Whelihan, E., et al., "Rescuing an Essential Enzyme-					-	with a No	n-essential			
			d Domain," EMBO J., 16(10):2968-74, May 15, 1997. 1., "Translational Efficiency of Transfer RNA's: Uses of an Extended Anticodon,"							
	HN	s: Uses of an	Extended A	Anticodon,						
	+-+			52, November 12, 1982.	ation of Transcription and Clonal Selection of Single Living					
	но	1	=	e as Reporter," Science, 279(
		Cens with D	cta-ractarras	DATE CONCIDE	DED					

EXAMINER

DATE CONSIDERED

* EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applican(s).